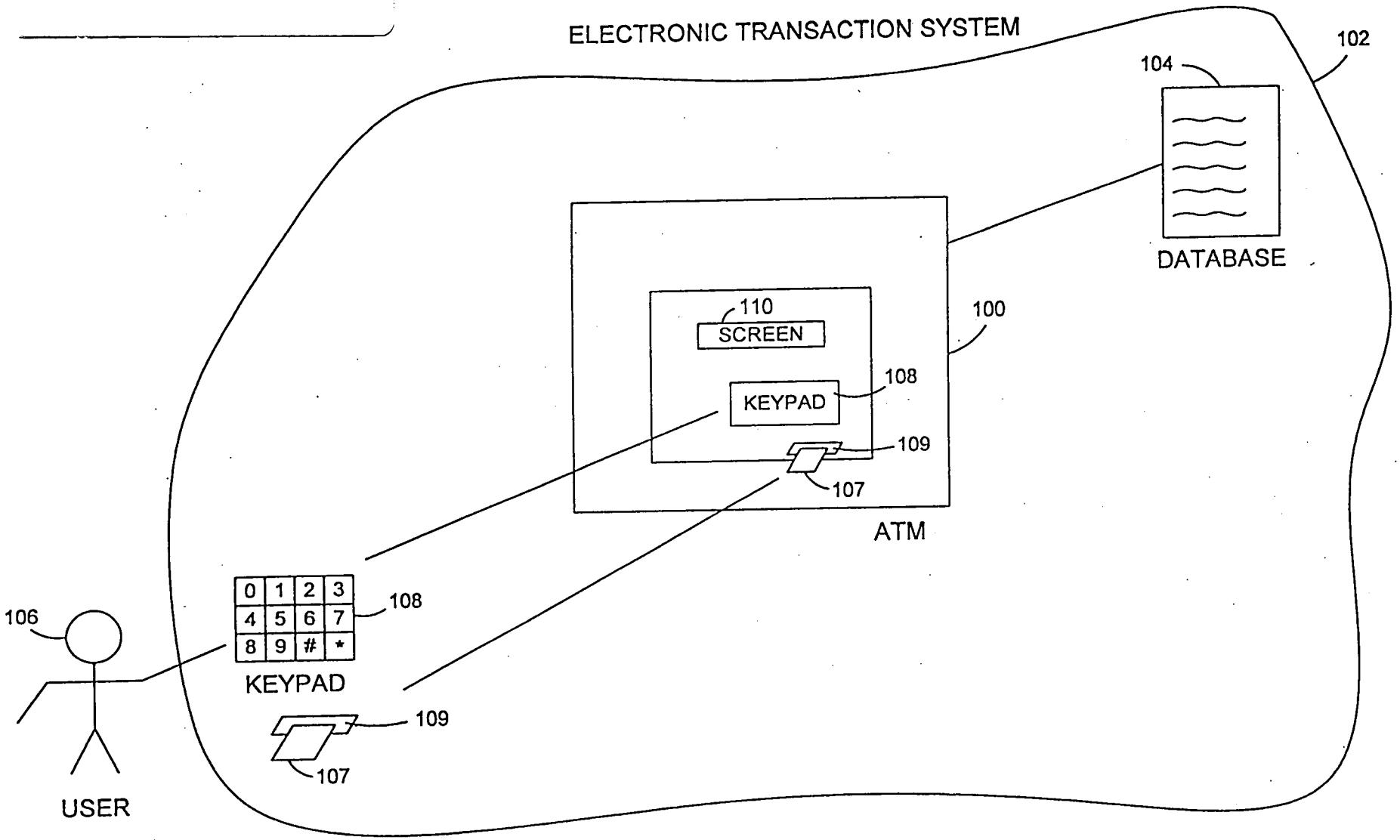



FIG. 1 (PRIOR ART)

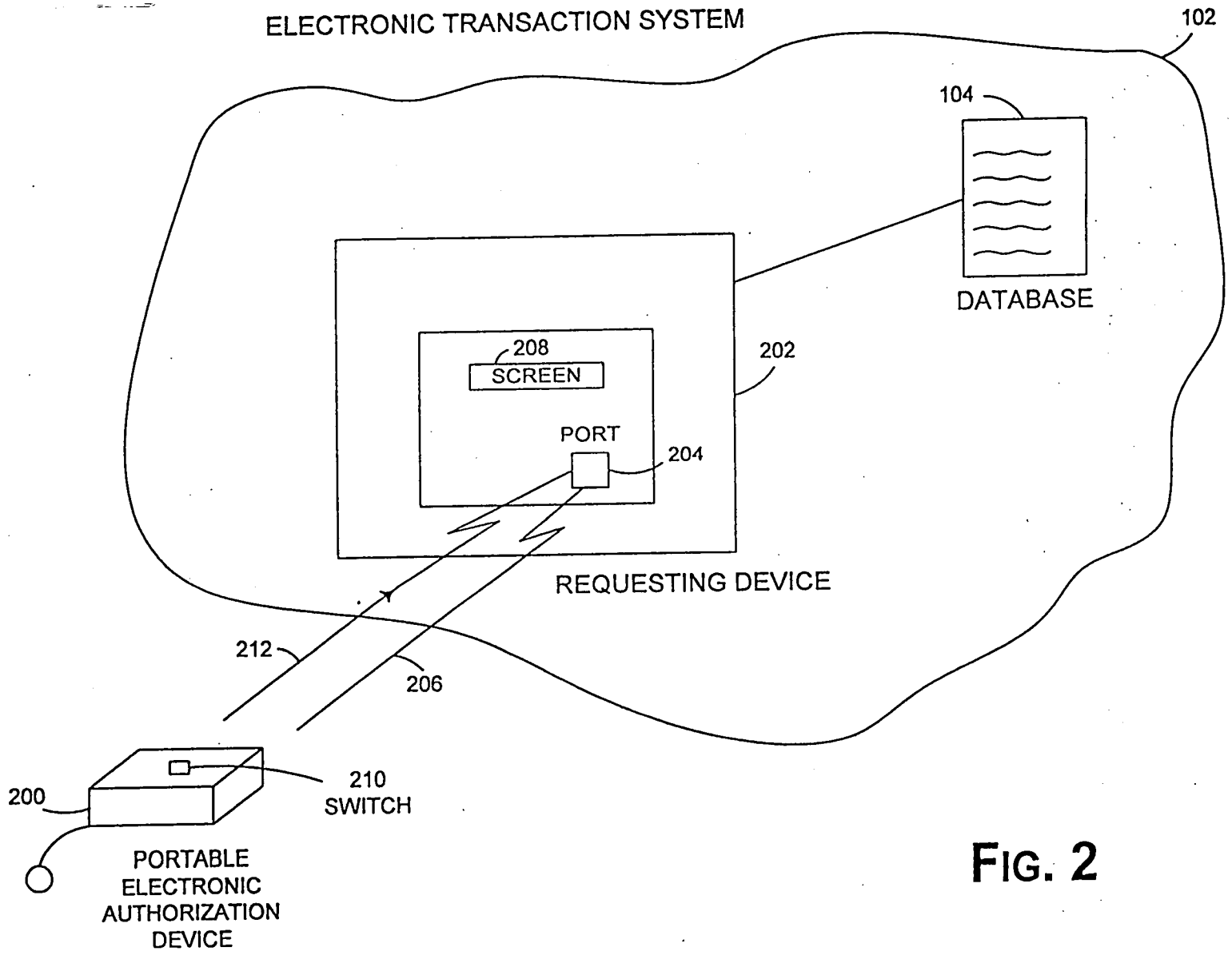

ELECTRONIC TRANSACTION SYSTEM
102
104
DATABASE
208
SCREEN
202
PORT
204
REQUESTING DEVICE
212
206
200
210
SWITCH
PORTABLE
ELECTRONIC
AUTHORIZATION
DEVICE

FIG. 2

10/27/03,892,007

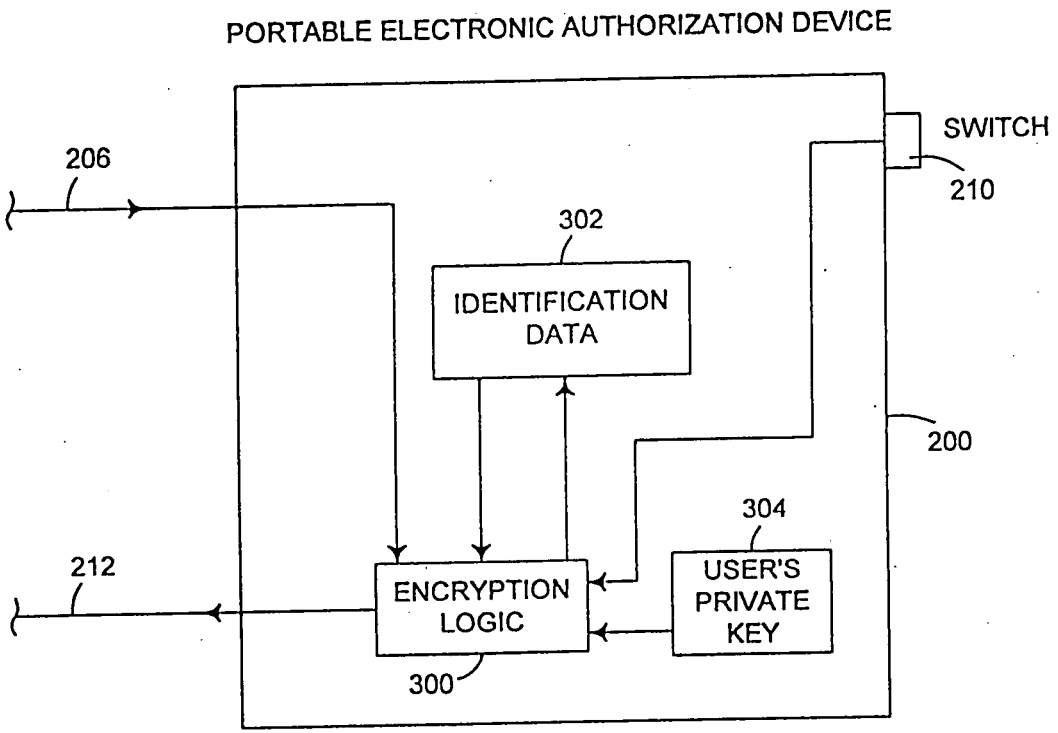



FIG. 3A

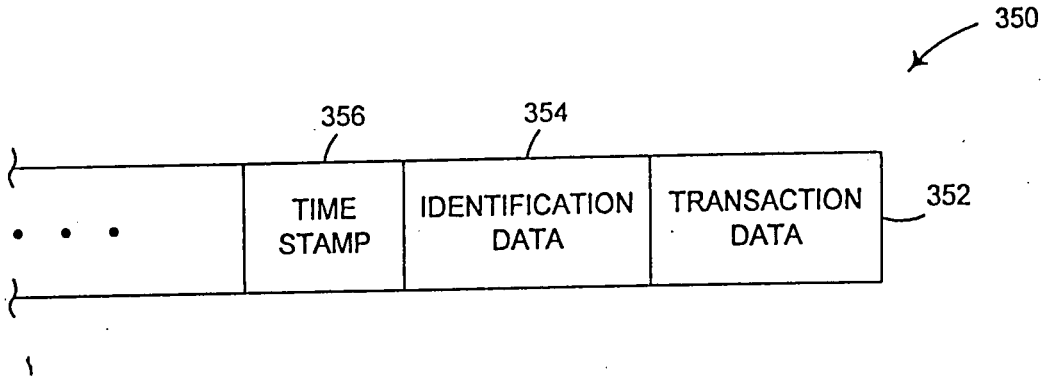



FIG. 3B

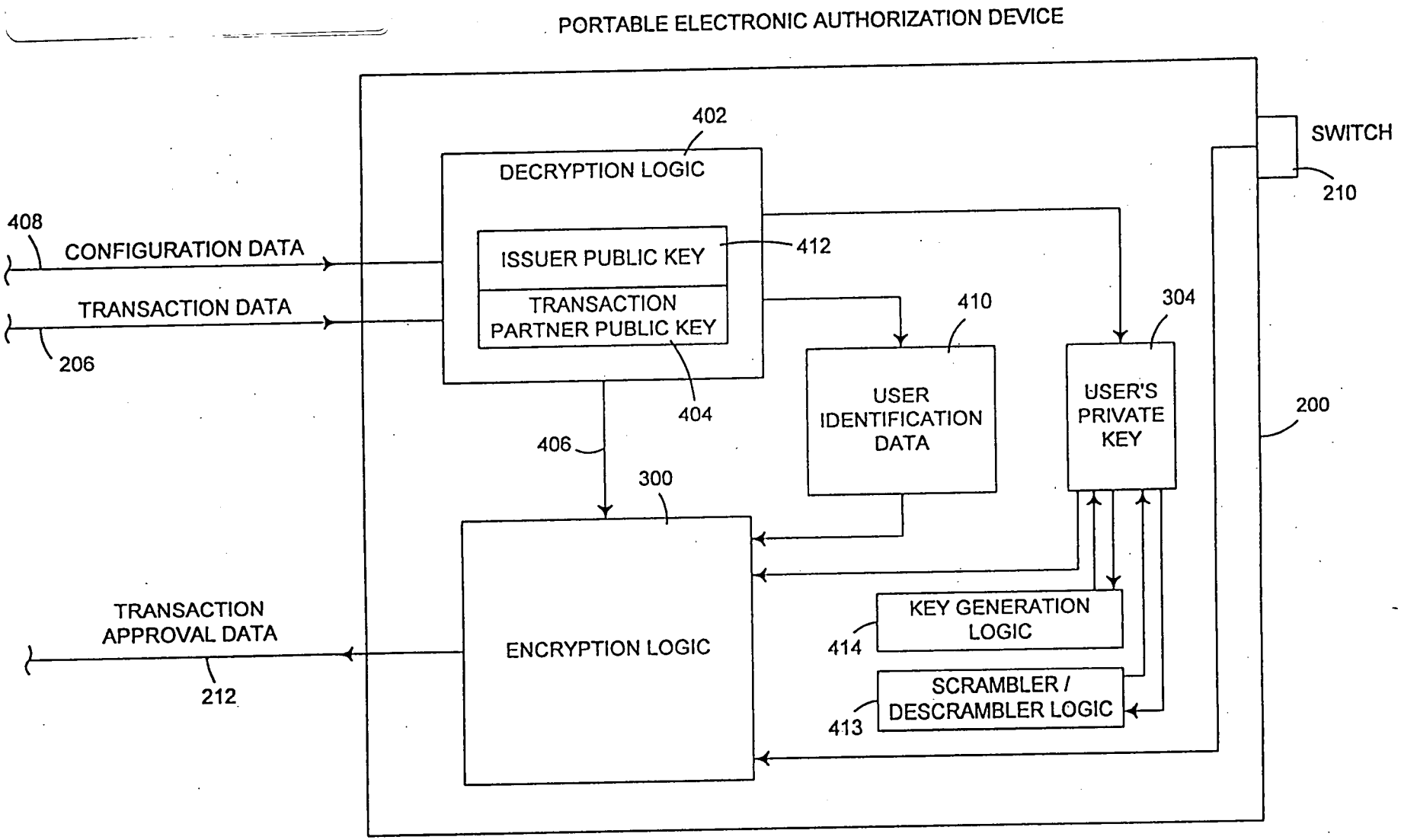

PORTABLE ELECTRONIC AUTHORIZATION DEVICE
402
DECRYPTION LOGIC
SWITCH
210
408
CONFIGURATION DATA
ISSUER PUBLIC KEY
412
TRANSACTION DATA
TRANSACTION PARTNER PUBLIC KEY
410
304
206
404
USER IDENTIFICATION DATA
USER'S PRIVATE KEY
200
406
300
TRANSACTION APPROVAL DATA
ENCRYPTION LOGIC
KEY GENERATION LOGIC
414
SCRAMBLER / DESCRAMBLER LOGIC
413
212

FIG. 4

10721 84892001

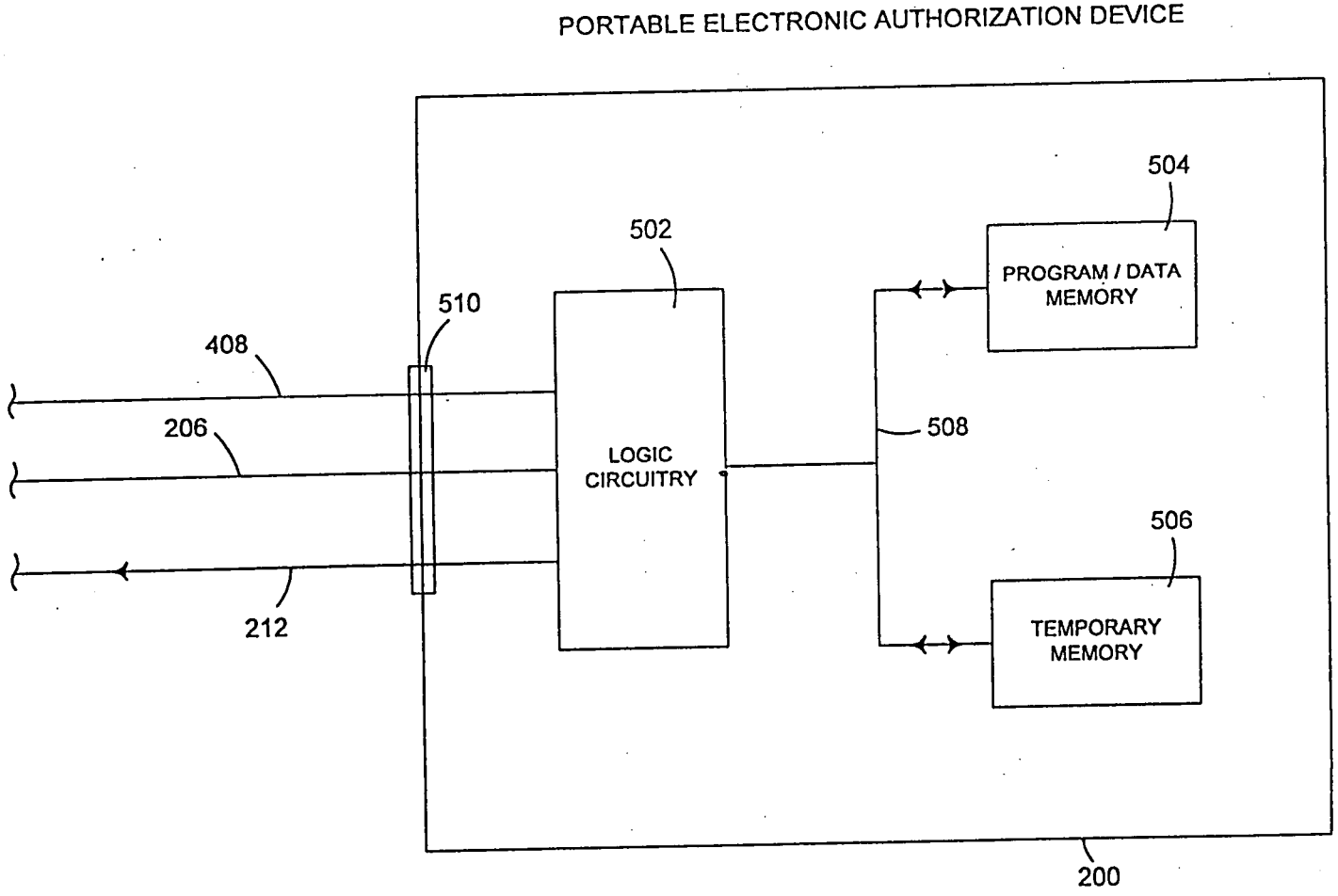



FIG. 5A

TOT22T" 8n89200T

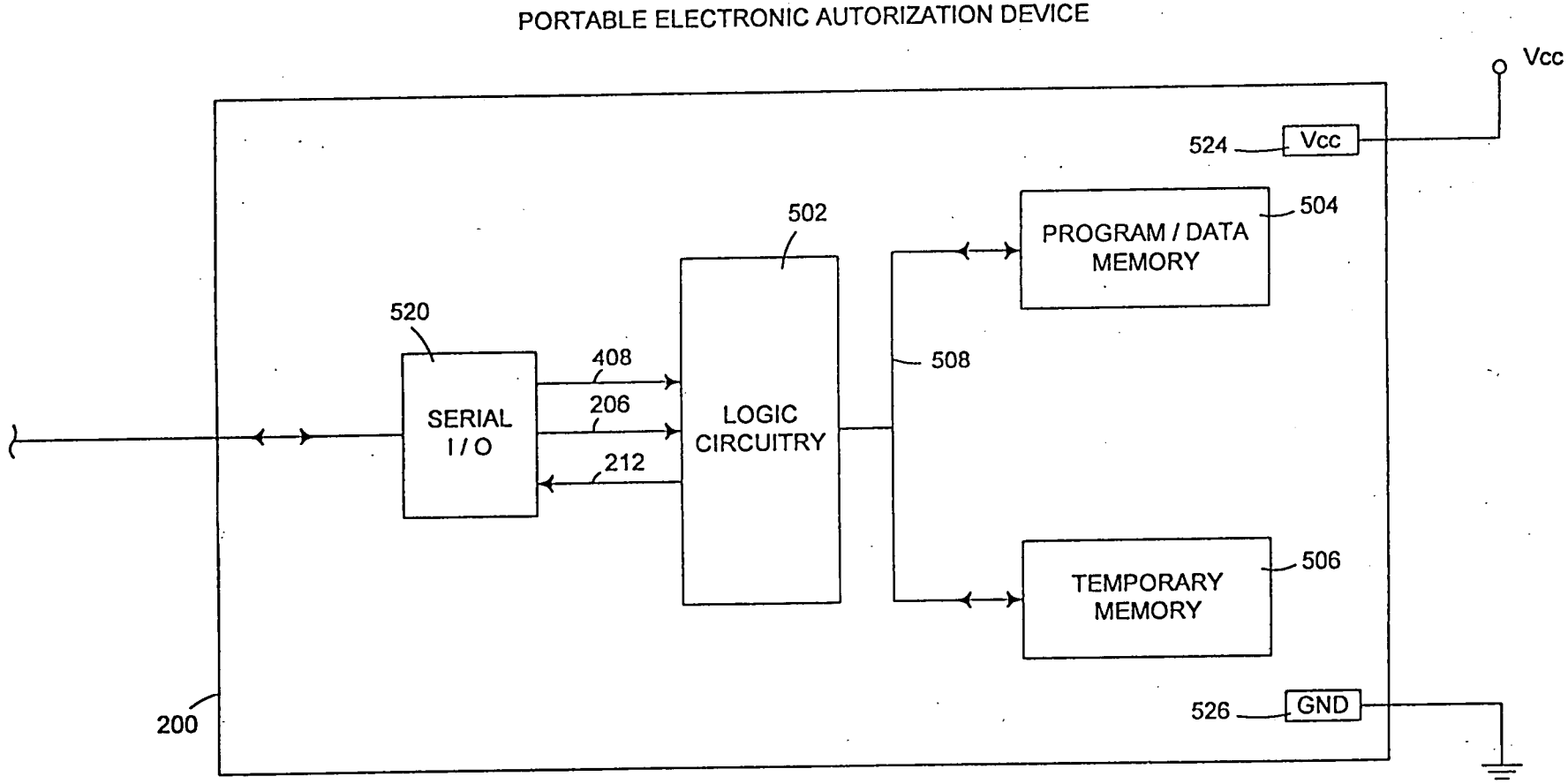



FIG. 5B

TOT22T "8h392007

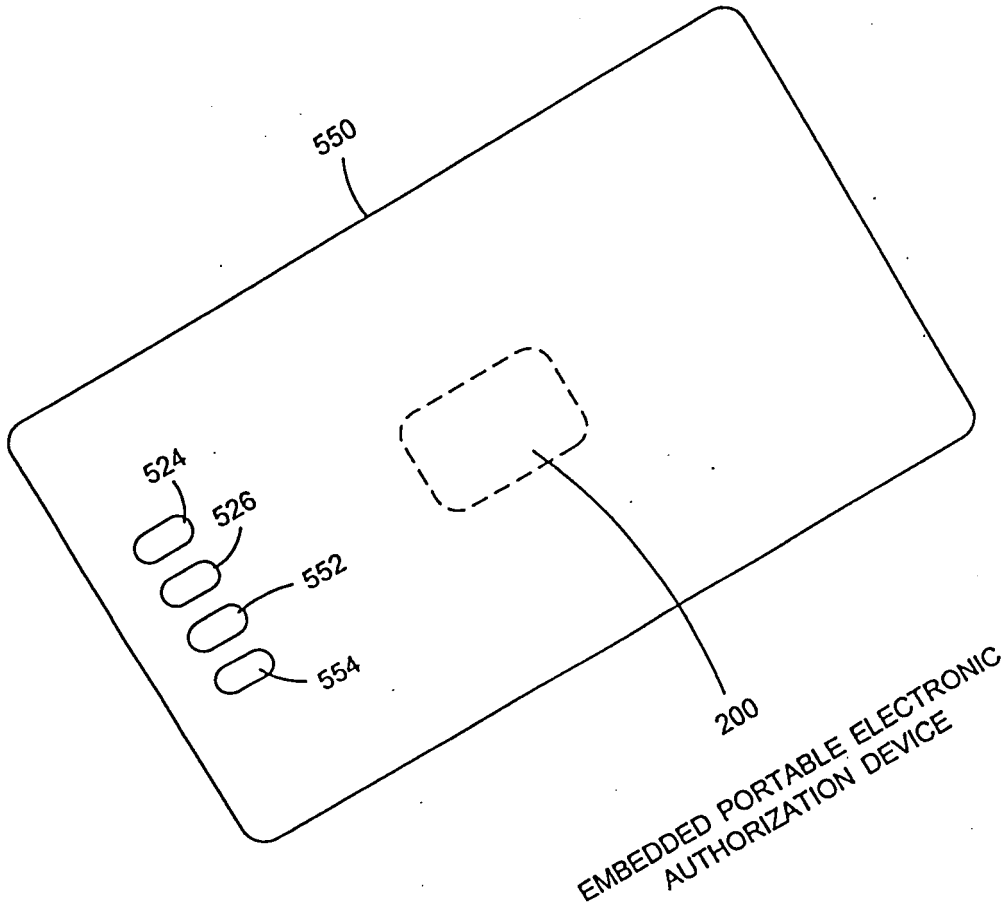



FIG. 5C

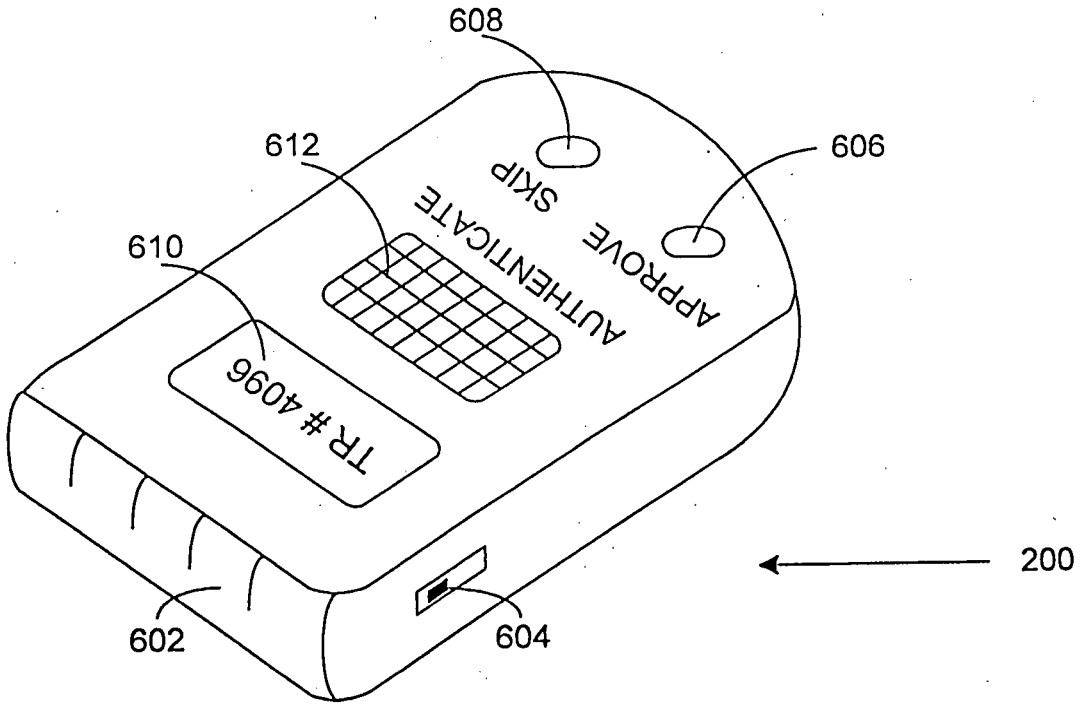

608
612
606
610
SKIP
APPROVE
AUTHENTICATE
TR#4096
200
602
604

FIG. 6A

TOT22T* 8+89207T

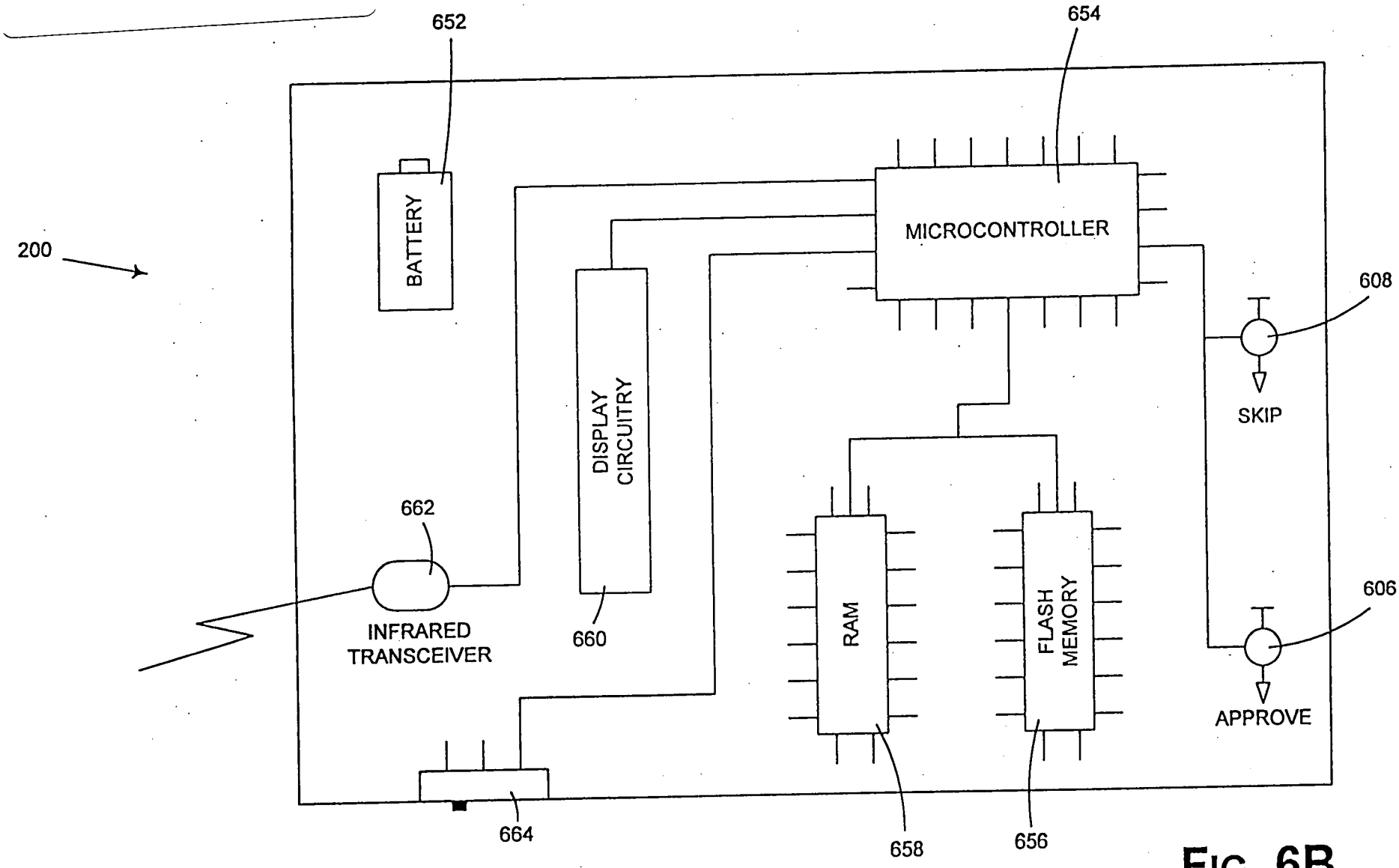



FIG. 6B

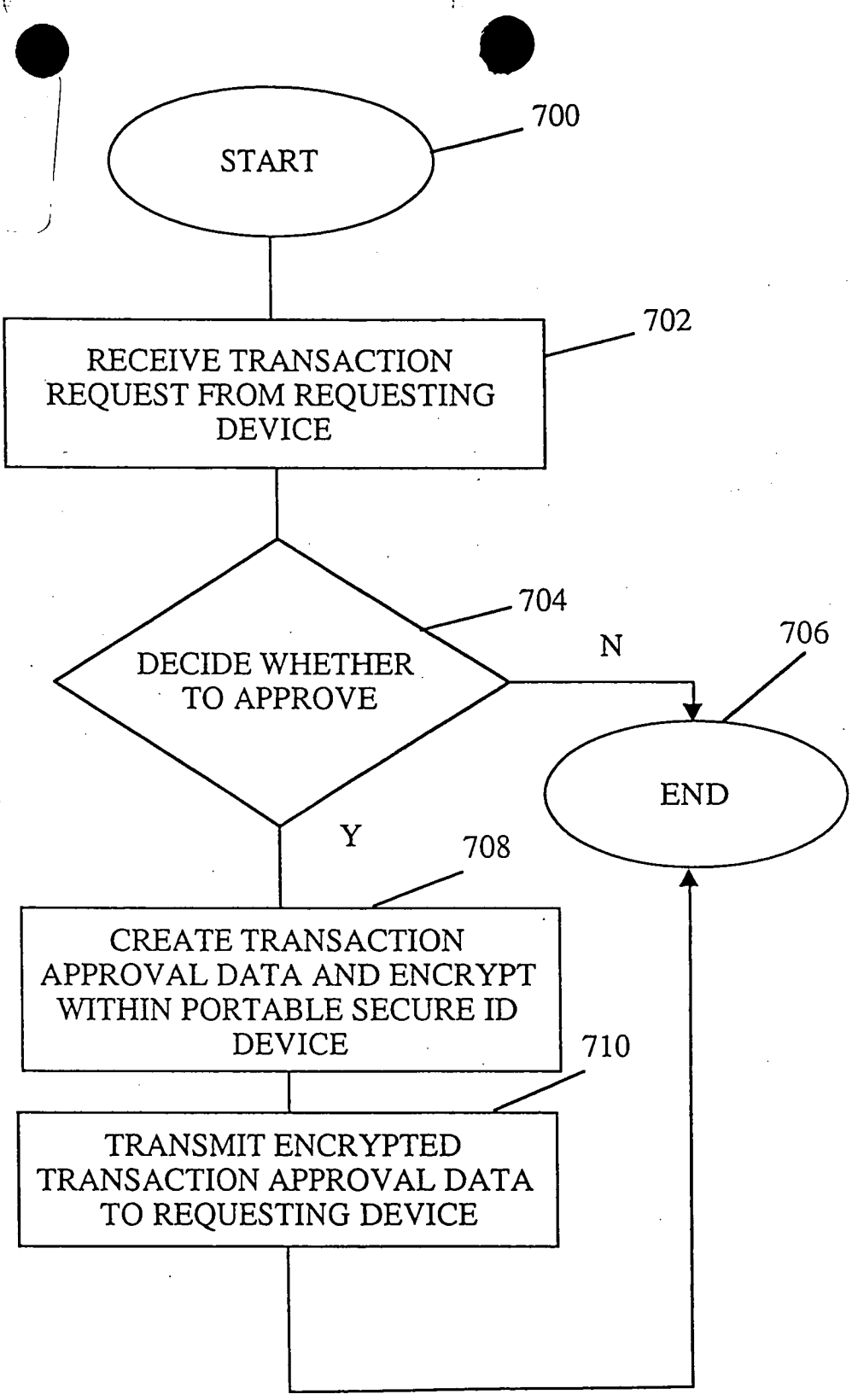

START
700
RECEIVE TRANSACTION REQUEST FROM REQUESTING DEVICE
702
DECIDE WHETHER TO APPROVE
704
N
706
END
Y
708
CREATE TRANSACTION APPROVAL DATA AND ENCRYPT WITHIN PORTABLE SECURE ID DEVICE
710
TRANSMIT ENCRYPTED TRANSACTION APPROVAL DATA TO REQUESTING DEVICE

FIG. 7

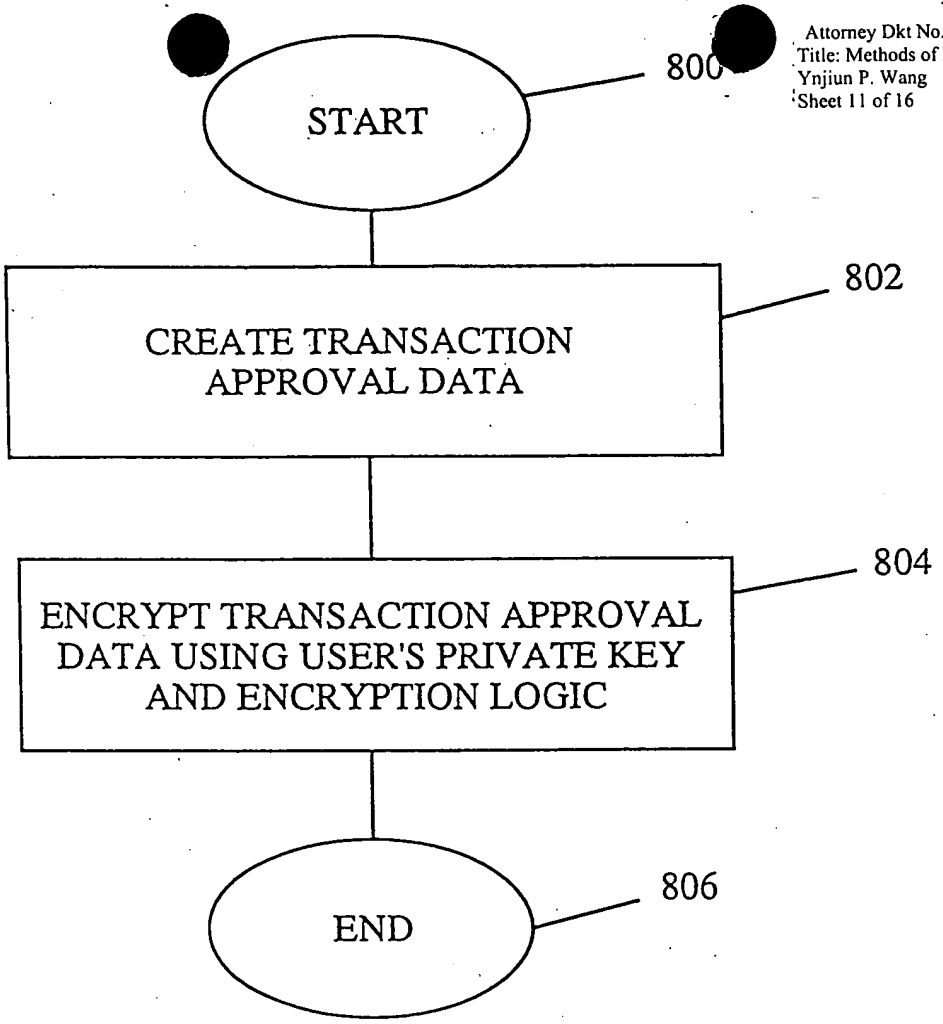
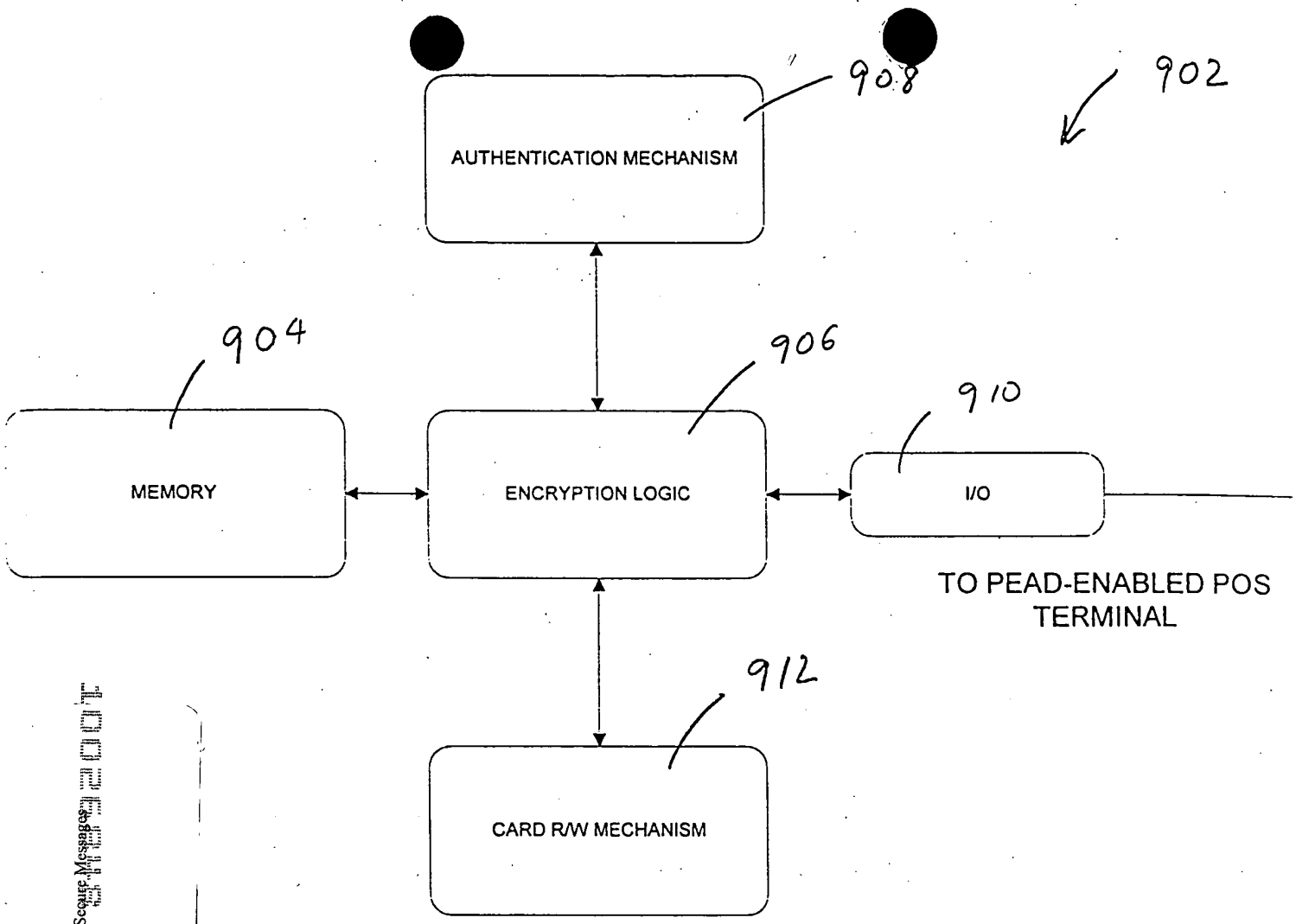



FIG. 8

EFS ID: 4605074
Application No. 10/465,019




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FIG. 9

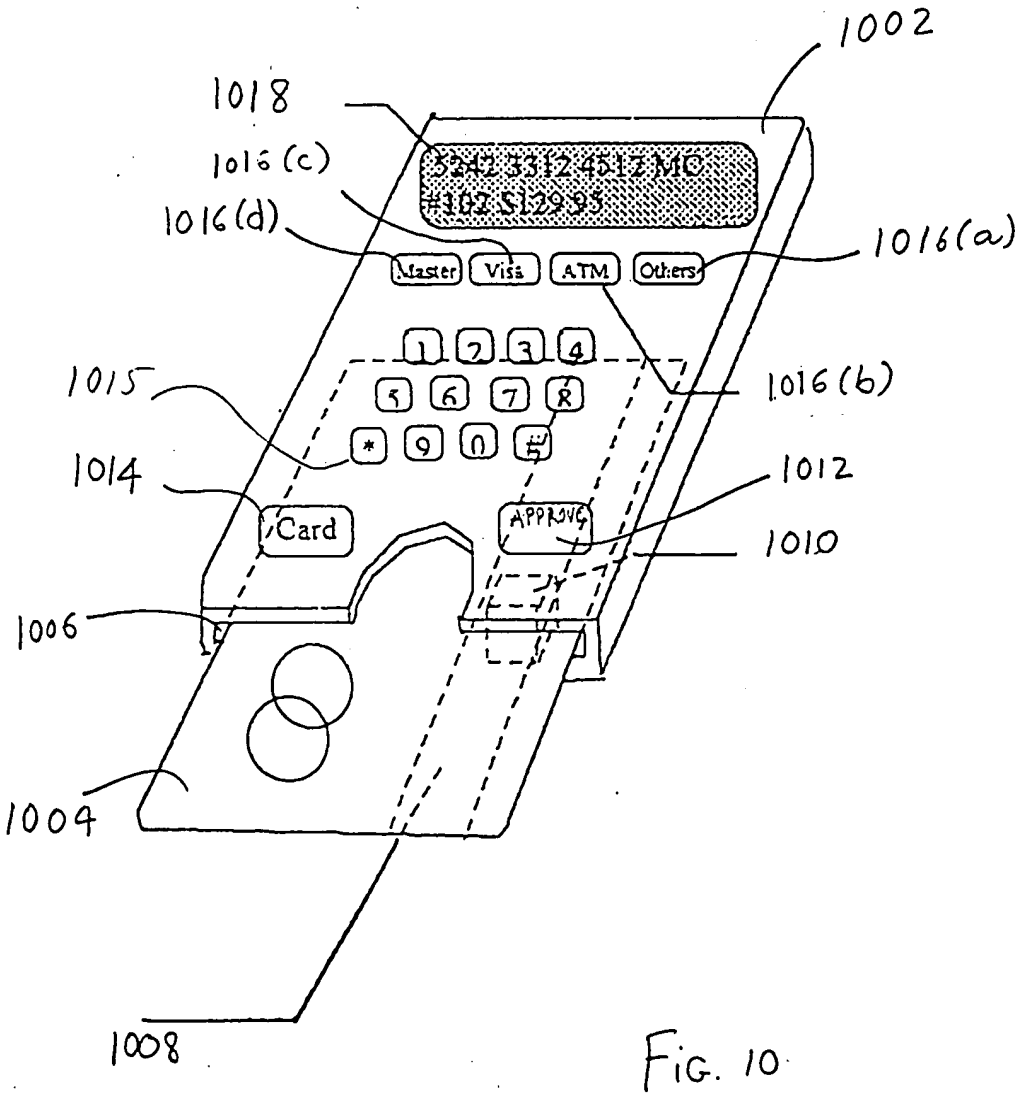

1002
1018
1016(c)
1016(d)
1016(a)
5242 3312 4512 MC
#102 S12995
Master
Visa
ATM
Others
1015
1016(b)
1014
1012
Card
APPROVE
1010
1006
1004
1008

FIG. 10

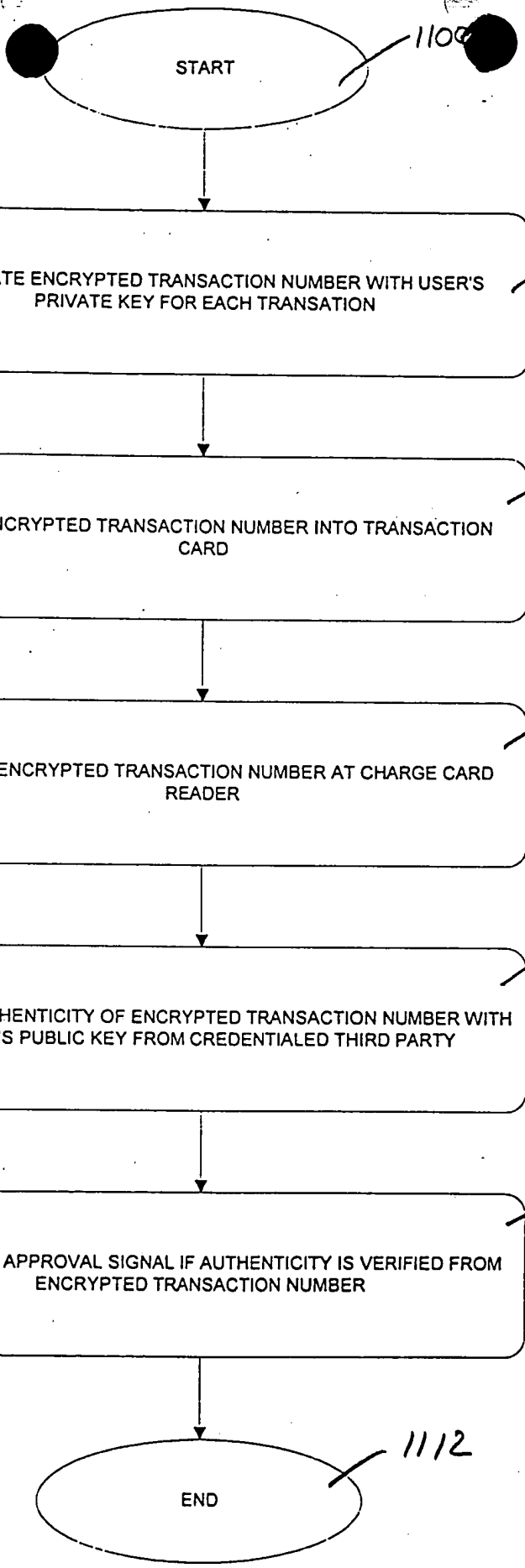

START
1100
GENERATE ENCRYPTED TRANSACTION NUMBER WITH USER'S PRIVATE KEY FOR EACH TRANSATION
1102
WRITE ENCRYPTED TRANSACTION NUMBER INTO TRANSACTION CARD
1104
RECEIVE ENCRYPTED TRANSACTION NUMBER AT CHARGE CARD READER
1106
VERIFY AUTHENTICITY OF ENCRYPTED TRANSACTION NUMBER WITH USER'S PUBLIC KEY FROM CREDENTIALED THIRD PARTY
1108
GENERATE APPROVAL SIGNAL IF AUTHENTICITY IS VERIFIED FROM ENCRYPTED TRANSACTION NUMBER
1110
END
1112

FIG. 11

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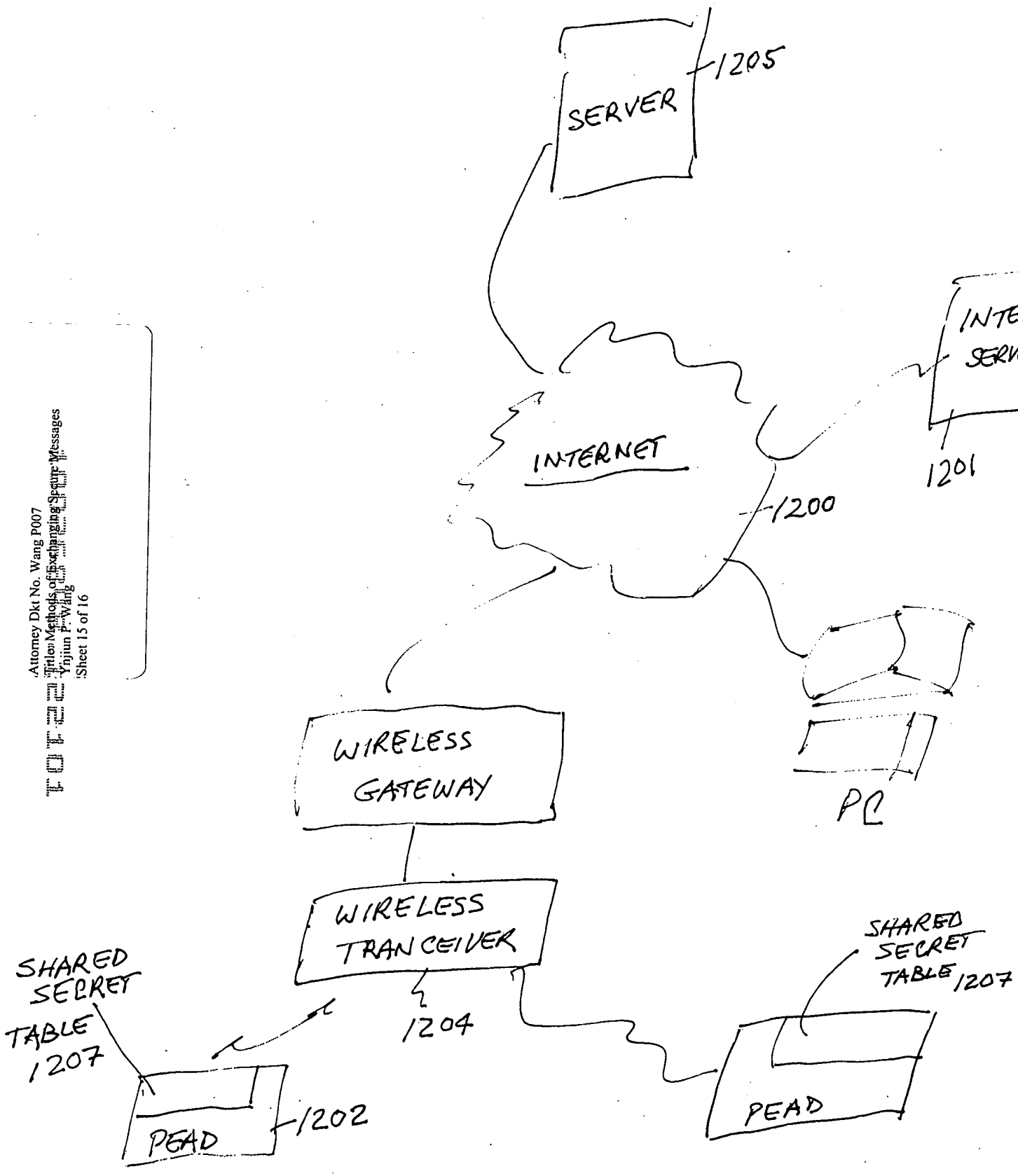



FIG 12A

Sender retrieves public key information using receiver's i.d. - 1210

Sender derives shared secret using receiver's public key - 1214

Sender encrypts message with shared secret - 1216

Sender sends message after appending receiver's i.d. - 1218

Receiver derives the shared secret using sender's user i.d. and senders public key - 1220

Store shared secret with receiver's i.d. as an index in receiver's PEAD - 1222

FIG 12B

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